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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/586,187	07/31/2007	Toru Kimura	01115_1013	4887

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DITTHAVONG MORI & STEINER, P.C.  
918 Prince Street  
Alexandria, VA 22314

EXAMINER
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JOHNSON, CONNIE P

ART UNIT	PAPER NUMBER
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1795

NOTIFICATION DATE	DELIVERY MODE
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09/22/2010

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

docket@dcpatent.com

<b>Office Action Summary</b>	<b>Application No.</b> 10/586,187	<b>Applicant(s)</b> KIMURA ET AL.	
	<b>Examiner</b> CONNIE P. JOHNSON	<b>Art Unit</b> 1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 16 July 2010.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                    | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)         | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                          |

### **DETAILED ACTION**

1. The remarks and amendment filed 7/16/2010 have been entered and fully considered.
2. Claims 1-14 are presented.
3. Claims 1 and 7 are amended.
4. The Obviousness-type Double Patenting rejection is withdrawn.

### ***Claim Objections***

5. Claim 7 is objected to because of the following informalities:

The recitation in claim 7, “wherein the divalent hydrocarbon group is a group an alkylene group having 1 to 4 carbon atoms is inserted between an alicyclic hydrocarbon group and a bistrifluoromethyl-hydroxy-methyl group” is not clear. Examiner suggests the recitation should read, “wherein the divalent hydrocarbon group, an alkylene group having 1 to 4 carbon atoms, is inserted between an alicyclic hydrocarbon group and a bistrifluoromethyl-hydroxy-methyl group.” Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

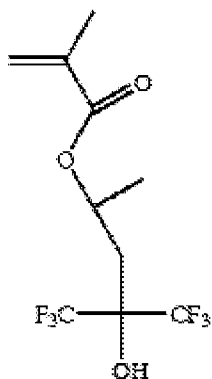
A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

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7. Claims 1-4 and 9 are rejected under 35 U.S.C. 102(e) as being anticipated by Li et al., U.S. Patent Publication No. 2005/0266354 A1.

Li teaches a topcoat material on a resist layer wherein the topcoat comprises an alkali-soluble polymer with a repeating unit with the following structure:



(page 5, [XXV]). Formula [XXV] is representative of formula (I)

in present claim 5, wherein R1 is a hydrogen and R2 is a 1,2-propylene group. Also, formula (XXX) on page 5 is representative of formula (I), wherein R2 is an alicyclic group. The topcoat also comprises a monovalent alcoholic solvent (page 7, [0023]). Li teaches a fluorinated polymer and a monovalent solvent with 6 or less carbon atoms, in a topcoat. Therefore, the components of the topcoat would not cause intermixing with the photoresist film. The recitation in claim 1, “applied to coat on a photoresist film when using an immersion exposure device which is irradiated through water provided between a lens and the photoresist film...and being dissolved in a subsequent developer” is a product by process limitation. Product by process claims are not limited to the manipulations of recited steps, only the structure implied by the steps. “[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is

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the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process.” In re Thorpe, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985) (MPEP 2113). The recitation, “forming a water-stable film during irradiation” is intended use and does not add positive recitation to the claim. The recitation in claim 9, “dissolving an alkaline solution during development using the alkaline aqueous solution” is intended use and does not add positive recitation to the claim. The polymer is used in a topcoat film for immersion exposure.

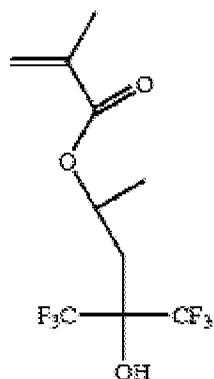
***Claim Rejections - 35 USC § 103***

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 1, 3, 5 and 6-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Li et al., U.S. Patent Publication No. 2005/0266354 A1.

Li teaches a topcoat material on a resist layer wherein the topcoat comprises an alkali-soluble polymer with a repeating unit with the following structure:



(page 5, [XXV]). Formula [XXV] is representative of formula (I) in present claim 5, wherein R1 is a hydrogen and R2 is a 1,2-propylene group (claim 8). Also, formula (XXX) on page 5 is representative of formula (I), wherein R2 is an alicyclic group (claim 7). The topcoat also comprises a solvent, such as 1-butanol and 1-propanol (page 7, [0023]) (claims 12 and 13). Li teaches a fluorinated polymer and a monovalent solvent with 6 or less carbon atoms in the topcoat layer as claimed. Therefore, the components of the topcoat layer would not be expected to cause intermixing with the photoresist film. The recitation in claim 1, “applied to coat on a photoresist film when using an immersion exposure device which is irradiated through water provided between a lens and the photoresist film...and being dissolved in a subsequent developer” is a product by process limitation. Product by process claims are not limited to the manipulations of recited steps, only the structure implied by the steps. “[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process.” In re Thorpe, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985) (MPEP 2113). The

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recitation, "forming a water-stable film during irradiation" is intended use and does not add positive recitation to the claim. The method of forming a patterned layer comprises applying a photoresist layer on the substrate, applying a topcoat layer on the photoresist, patternwise exposing the coated substrate through a mask pattern and developing with an aqueous alkali solution wherein the topcoat and a portion of the photoresist are removed simultaneously to form a patterned resist layer (page 7, [0027-0028]) (claim 14). The photoresist is immersion exposed with water as the immersion solvent (page 7, [0025]). Li does not teach formulas (XXV) and (XXX) over other repeating units in the polymer. However, it would have been obvious to one of ordinary skill in the art to choose formulas (XXV) and (XXX) as repeating units in the polymer of the topcoat with reasonable expectation of forming a topcoat that is alkali-soluble and suitable for 193nm immersion lithography.

### ***Response to Arguments***

10. Applicant's arguments filed 7/16/2010, with respect to the rejection(s) of claim(s) 1-4 and 9 under 102(e) over Komoriya and claims 1, 3 and 5-12 under 103(a) over Komoriya have been fully considered and are persuasive. Therefore, the rejections have been withdrawn.

11. Applicant argues that claim 7 has been amended consistent with the examiner's suggestion, thereby overcoming the stated basis for the claim objection.

However, the amendment to claim 7 is not the suggestion made in the office action mailed 4/19/2010. In claim 7, applicant added "wherein the divalent hydrocarbon group is a group an alkylene group having 1 to 4 carbon atoms is inserted between an alicyclic hydrocarbon group and a bistrifluoromethyl-hydroxy-methyl

group", however the phrase "is a group" is not included in the sentence suggested by the examiner. Therefore, the claim objection is maintained.

12. Applicant argues that claim 1 requires that the solvent have a specific property, i.e., it must not cause intermixing between the upper layer film and an underlying photoresist film after being coated thereon. Further, that Komoriya does not teach selecting solvent that avoids such intermixing as claimed.

13. Applicant argues that Li is not prior art with respect to the claimed invention. Applicant further argues that a certified English translation is being prepared and will be submitted when received.

Applicant has not submitted the English translation, therefore Li is prior art under 102(e).

### ***Conclusion***

14. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.



Any inquiry concerning this communication or earlier communications from the examiner should be directed to CONNIE P. JOHNSON whose telephone number is (571)272-7758. The examiner can normally be reached on 7:30am-4:00pm Monday thru Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cynthia Kelly can be reached on 571-272-1526. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Connie P. Johnson  
Examiner  
Art Unit 1795

/Cynthia H Kelly/

Supervisory Patent Examiner, Art Unit 1795